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VII

FOUR SPECIES OF SALAMANDERS NEW TO THE  
STATE OF CALIFORNIA, WITH A DESCRIPTION  
OF PLETHODON ELONGATUS, A NEW  
SPECIES, AND NOTES ON OTHER  
SALAMANDERS

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In recent years the Academy has received specimens of four species of salamanders which seem never to have been collected previously in California. Three of these have been known from examples secured in Oregon or Washington; the fourth species appears never to have been described. In recording these facts opportunity is taken to publish certain other notes regarding California salamanders.

1. *Ambystoma macrodactylum* Baird.

Three specimens (Nos. 39656, 39657, 39658) collected by Dr. E. C. Van Dyke in July, 1915, near Fallen Leaf Lake, El Dorado County, California, add a species to the known fauna of the State. They seem to differ in no respect from others collected in Washington.

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## 2. *Chondrotus paroticus* Baird.

I have not been able to find any previous record of the occurrence of this salamander in California. It is represented in our collection by a typical specimen (No. 29108) found by Mr. J. R. Slevin in wet earth under a stump near Requa, Del Norte County, California, May 22-26, 1911.

## 3. *Autodax ferreus* Cope.

This salamander has been known only from the type specimen (U. S. N. M. No. 6794) collected by Dr. Vollen at Fort Umpqua, Oregon. We have specimens from Elmira and Marshfield, Oregon, and from Bayne Island, British Columbia, as well as from Requa, Del Norte County; Alton, Trinidad, and Carlotta, Humboldt County; and Comptche, Mendocino County, California. Our two Requa examples (Nos. 29099 and 29102) were found by Mr. Slevin, May 22-26, 1911. They were taken from the rotten wood of a dead tree in which they were living some 20 feet above the ground. This species is related to *Autodax lugubris*, but is quite distinct.

## 4. *Plethodon elongatus*, new species.

*Diagnosis*—Similar in general appearance to *Plethodon vandykei* and *Plethodon intermedius*, but somewhat stouter; costal grooves 16; toes and fingers not webbed; adpressed limbs separated by 6 or 7 costal interspaces; tail cylindro-conic, considerably compressed in distal third; paratoid not developed; a dorsal band as in *P. intermedius*, but obscured by the general duskiness of coloration; lower surfaces blackish brown, relieved with whitish dots.

*Type*—Cal. Acad. Sci. No. 29096, Requa, Del Norte County, California, J. R. Slevin, May 22-26, 1911.

*Material*—Four specimens (Nos. 29094, 29095, 29096 and 29101) from Requa, all collected at the same time.

*Description of the type*—General form similar to *P. intermedius*, but with body, limbs and tail somewhat stouter; tail cylindro-conic, compressed laterally in posterior half, nearly equal to length of head and body, with strong vertical grooves

nearly to tip; head somewhat depressed, about width of widest part of body; snout rounded from above and in profile; eyes moderate, separated anteriorly by about one and one-half times the length of the orbital slit; nostrils small, separated by about their distance from pupil; subnasal groove descending nearly to margin of lip; line of lip curved downward from below eye to end of snout; palatine teeth in two slightly curved series beginning just behind the internal nares, converging obliquely backward, and separated on the median line by a space greater than the diameter of the internal nares; parasphenoid teeth in one patch throughout, separated from the palatine teeth by an interval equal to distance from nostril to edge of lip; internal nares small; tongue large, ovate, not emarginate, attached along median line but free laterally and, for a short distance, behind; neck a little narrower than body, no paratoid gland, gular fold continued up and then forward as a groove to eye; a groove along vertebral line from head to tail; costal grooves between limbs 16, not continued to midline either above or below; limbs a little stouter than in *P. intermedius*, and with shorter digits, anterior with four and posterior with five digits; digits rather short, with rounded ends, each with a small terminal pad, inner shortest, third longest, second finger longer than fourth, second toe shorter than fifth, third and fourth toes nearly equal, broadly palmate, but no web; adpressed limbs separated by about six costal folds.

The coloration is similar to that of *P. intermedius*, but heavily clouded with black. The general color is blackish brown above and below; a broad, lighter brown, black-edged, dorsal band extending from snout to base of tail; lower surfaces sprinkled with small whitish dots, which become larger on the sides, gular region and chin.

<i>Measurements</i>		MM.
Snout to anus.....		59
Front of anus to end of tail.....		58
Width of head.....		7.5
Nostril to orbit.....		1.5
Snout to orbit.....		3
Snout to gular fold.....		11
Snout to fore limb.....		14.5

Gular fold to anus.....	38
Axilla to groin.....	30
Adpressed limbs separated by.....	11
Fore limb .....	9
Hind limb .....	10.5
Heel to end of longest toe.....	5
Breadth of foot.....	3.5

*Variation*—The three adult specimens are identical in structural characters and coloration. No. 29101 is a young salamander measuring 28mm. from snout to anal opening, with a tail 14mm. long. It is like the three adults in the number of its costal folds and general coloration, except that the dorsal band is bright pink clouded on the head and along the mid-dorsal line with dark brown. This brightly colored band extends from the snout, along the back, nearly half way down the tail. This specimen looks very much like *P. intermedius*, but the lower surfaces are darker.

*Remarks*—While this new species is manifestly closely related to *Plethodon intermedius* and *P. vandykei*, it can easily be distinguished from both by the greater number of its costal grooves and the greater space between its adpressed limbs. The number of costal grooves is 16 in all four specimens of the new species, while in *Plethodon vandykei* these grooves are 12 and 13, and in *P. intermedius* they are 13 or 14. *Plethodon intermedius* is of more slender build, with longer toes, more truncate snout, and less dusky coloration. The paratoid gland and webbed feet of *P. vandykei* are characters which should render its recognition easy.

##### 5. *Plethodon intermedius* Baird.

This salamander was originally described from one specimen said to have been secured by John Xantus while stationed at Fort Tejon, California. So far as I know, with the exception of the type of *Plethodon crassulus*, this species has never since been found in California, although it is common in western Oregon and Washington. I have felt that the type could not have been collected by Xantus near Fort Tejon, but must have been so recorded through some error. With this

in mind I wrote to Dr. Stejneger to inquire whether the records of the National Museum would throw any light on the matter. He has very kindly investigated these records and writes that "there seems originally to have been some trouble with the series of entries to which these belong, as apparently by some mistake two collections were given the same numbers. The locality Ft. Tejon looks to me exceedingly dubious, though, of course, it does not mean only the immediate neighborhood of the old fort." A copy of the old record is printed here under that of *Plethodon croceater*; see remarks under head of that species.

Seventy specimens of *Plethodon intermedius* from Oregon and Washington show costal grooves as follows:

Specimens	Costal grooves
9 .....	13-13
3 .....	13-14
58 .....	14-14
—	
70	

#### 6. *Plethodon crassulus* Cope.

The question of the identity of this salamander was raised by the comparison of *Plethodon intermedius* and *Plethodon elongatus*. *Plethodon crassulus* was described in 1886 by Cope from one specimen in the U. S. National Museum, and was said to have been collected in California by Dr. J. G. Cooper. Cope says that "this species has a superficial resemblance to the *P. oregonensis*, but its manifold differences are easily perceived." He also states that the form is quite robust, but his cuts show a salamander similar in size and proportions to *P. intermedius*, and his description fits that species in every detail, for some specimens of *P. intermedius* show the dorsal band very indistinctly. The type of *P. crassulus* is No. 9447 of the National Museum collection. In response to my request for information regarding it Dr. Stejneger has very kindly written me as follows:

"The record of 9447 is dated November 20, 1877, is in an unknown hand, and is blank as far as name is concerned. Locality is given as California, collector as Dr. Cooper. You

ask what I think of *P. crassulus*. I have given the question some thought and I am of the opinion that it is a uniform color phase holding the same relation to *P. intermedius* (with which the type agrees structurally and not with *P. oregonensis*) as *P. cinereus* does to *P. erythronotus*."

*P. crassulus* may, therefore, be regarded as a synonym of *P. intermedius*. I think one is justified in doubting that the original specimen really was collected in California.

### 7. *Plethodon croceator* Cope.

This salamander also was described from a single specimen said to have been sent to the National Museum by John Xantus from Fort Tejon, California. This specimen was No. 4701 of the National collection. It seems to have been lost, for Dr. Stejneger writes me that it has not been on the shelves in his time. As in the case of *P. intermedius*, "there seems originally to have been some trouble with the series of entries to which these belong, as apparently by some mistake two collections were given the same numbers. First there is an entry in an unknown hand in black ink and under there is an entry in Prof. Baird's handwriting thus:

"4701 Rana	Chiloweyush	Dr. C. B. Kennerly
Heredia	Fort Tejon —1—	Xantus
" 4732 Scotophis gutatus	Micanopy, Fla.	Dr. Bean
" "	occidentalis Ft. Tejon	Xantus

"The ditto mark [under *Scotophis*] refers to the line above, which is *Plethodon*, and this *Plethodon*, No. 4731, is a *Plethodon cinereus* from Detroit, Dr. Sager."

It is evident that the locality Ft. Tejon is "exceedingly dubious." *Plethodon occidentalis* is evidently a manuscript name for *P. intermedius*.

Cope has recorded *Plethodon croceator* from Cape San Lucas, Lower California, and San Diego, California, both of which localities need confirmation. The former locality may have resulted from the association of the original specimen with John Xantus, who collected both at Cape San Lucas and



Fort Tejon. The latter, probably refers to a specimen recorded by Mr. Lockington (Am. Nat. XIV, 1880, p. 295) as having been taken in Lower California 75 miles southeast of San Diego.

I have seen a number of specimens from the Sierra Nevada. The ground color varies from light brown to nearly black, and the yellow spots vary greatly in size and arrangement.

#### 8. *Plethodon flavipunctatus* Strauch.

I have no doubt that this is the same species as Cope's *Plethodon croceater*, with which the description agrees.

#### 9. *Triton ensatus* Eschscholtz.

Eschscholtz evidently had the species which Baird and Girard later described as *Amblystoma tenebrosum*, and which Cope referred to his genus *Chondrotus*. *Dicamptodon* Strauch is an older term than *Chondrotus*. Those who prefer to remove the species from the genus *Ambystoma* may use the name *Dicamptodon ensatus* (Eschscholtz).